REMARKS

Claims 1-3, 7-8, 13-18, and 23-24 are cancelled. Claims 9-12 and 19-22 are pending in the application.

Claim Rejections – 35 USC §112

The Examiner maintains the rejection of claims 9-12, 19-22 under 35 U.S.C. 112, second paragraph as allegedly being indefinite. Applicant respectfully traverses this rejection.

The Examiner rejects claims 9-12 and 19-22 because it is allegedly not clear "exactly where the 'input' and 'output' of the feedback path are." *See* Final Office Action (dated June 11, 2009), pp. 2-3. However, the Office cites no authority for this proposition, but only rejects the claims under 35 U.S.C. §112, ¶ 2. Presumably, the Examiner relies on M.P.E.P. § 2172.01, ¶ 1, which provides guidance on requirements of 35 U.S.C. § 112—namely, that Applicant is required to claim that which he considers to be his invention. M.P.E.P. § 2172.01, ¶ 1, reads, in pertinent part:

> 2172.01 Unclaimed Essential Matter
>
> A claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected under 35 U.S.C. 112, first paragraph, as not enabling. *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). See also MPEP § 2164.08(c). Such essential matter may include missing elements, steps or necessary structural cooperative relationships of elements ***described by the applicant(s) as necessary to practice the invention***. (*emphasis added*)

The Final Office Action fails to establish anywhere that the elements alleged by the Examiner to be essential are missing. Apparatus claim 9, for example, calls for a feedback path having input/output terminals, an analog-to-digital converter and a switch for coupling the input/output terminals. Claim 9 also calls for a ringing generator acting in response to a control signal, wherein the control signal also activates the switch to couple the input/output terminals. As

such, claim 9 recites all elements needed to practice the invention. M.P.E.P. §2173.02 speaks to this point:

> The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. §112, ¶2, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement. M.P.E.P. §2173.02, Clarity and Precision.

While the Examiner suggests claiming devices to which the input and output are connected (Final Office Action, p.6), Applicant respectfully asserts that such limitations are not necessary to make the claims clear for at least the reasons recited herein. Similarly, as the Examiner recommends that all components in the path be claimed (Final Office Action, p.7), no such statutory requirement exists and all components in the path are not necessary to practice the invention.

Further, Applicant has previously respectfully directed the Examiner's attention to Figure 2 of the instant Application for an exemplary and illustrative example of a feedback path and its corresponding input and output terminals. Figure 2 shows, *inter alia*, a DC cancellation loop 298 and a DC feed loop 300. *See also* Specification, p.12, ll. 2-7. The DC cancellation loop, for example, is part of the subscriber line audio-processing circuit (SLAC) 215. As can be seen from Figure 2, the DC cancellation loop 298 has an input VIN 285, and A/D converter 305, a switch 319, and an output CANC 290. Claim 9 calls for, *inter alia*, "a feedback path having an

input and output terminal, the feedback path including an analog-to-digital converter." Thus, a person of ordinary skill in the art would understand the input and output features of the feedback path when read in light of the specification and the drawings, particularly when the claims recite current and voice signals relating to the feedback path. The question is whether one of ordinary skill in the art can ascertain the metes and bounds of the claim. Applicant is not required to provide a clear definition within the claim language for terms in the claims. Indeed, Office policy is firmly to the contrary:

> Definiteness of claim language must be analyzed, not in a vacuum, but in light of:
>
> (A) The content of the particular application disclosure;
>
> (B) The teachings of the prior art; and
>
> (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

M.P.E.P. § 2173.02. Some imprecision is allowed in the claims, for example, to cover multiple embodiments disclosed in a specification using a single claim. Thus, this particular rejection clearly employs the wrong standard.

Additionally, the Examiner's interpretation of the claims is incorrect. For instance, in the Final Office Action (Response to Arguments, p.7), the Examiner states "per applicant's arguments that the input/output of Moyal is not the same as that of applicant's device, the examiner reads the 'input' and 'output' of a loop broadly and contends that Vin and the input to the A/D would read on the input/output as claimed." The Examiner's position is untenable for several reasons. The Examiner states that he reads the claimed features "broadly," but the Examiner is not reading the claimed features *reasonably in context of the entire claim*. As an example, the Examiner argued that claim 9 reads solely upon the switch element in ***Moyal***; the Examiner stated "Vin and the input to the A/D" could be the claimed input and output terminals

of claim 9. Analyzing ***Moyal***, Fig. 4, shows that if Vin is the input of the path (according to the Examiner) and the input of the A/D 110 is the output (according to the Examiner), the "path" as argued by the Examiner consists exclusively of switch element 105. Such an interpretation, while admittedly broad, is not reasonable and proper in context of the entire claim.

Still further, claim 9 calls for a feedback path having input/output terminals, an analog-to-digital converter and a switch for coupling the input/output terminals. The Examiner's position that "Vin and the input to the A/D would read on the input/output as claimed" (*i.e.*, the Examiner posits that the switch 110 could be the feedback path of claim 9) cannot be correct because there is no A/D converter in the Examiner's proposed path. In contrast, claim 9 calls for a path which includes an A/D converter for processing voice signals. Claim 9 also calls for a switch for coupling the input/output terminals. Under the Examiner's interpretation, a path consisting exclusively of switch 110 cannot, by definition, couple the input/output terminals of a path which includes an A/D converter.

In the Final Office Action, the Examiner again argues that the phrase "lesser current flows through at least one component," as used in the claims, is indefinite because it is unclear as to what value the "lesser current" is less than. *See* Final Office Action, p.3. The Examiner argues that this feature is not clear because the *exact endpoints* of the feedback path are not recited in the claims. In addition to the arguments presented above concerning the specificity of the claim language (*i.e.*, Applicant is not required to claim the *exact endpoints* of the feedback path), a showing of the *exact endpoints* of the feedback path, in order to make the term "lesser current" clear, is unnecessary. Claim 9 calls for "lesser current" flowing through the A/D converter, and Applicant respectfully asserts that the A/D converter has been clearly claimed.

Further, Applicant again respectfully points out that when claim 9 is read as a whole (*i.e.*, all the elements are read in context with each other), it is apparent that the current flowing through the A/D converter 305 *after* the input and output terminals are coupled is less than the current that was flowing through the A/D converter 305 when the input and output terminals were not coupled. Indeed, the specification confirms this point. *See* Patent Application, Fig. 2 & p.12, ll.9-15 (stating "during a ringing mode…the switch 319 couples the VIN and CANC terminals 285, 290 of the SLAC 215, thereby disengaging the DC cancellation loop 298 from the CANC terminal 290.). In view of the claim language and the specification, one of ordinary skill in the art would understand this relationship because the claims call for lesser current "as a result of coupling the input and output terminals."

With respect to the "lesser current" feature, the Examiner appears to believe that this feature calls for lesser current to **only** flow through one particular component in the feedback path relative to other components in the same feedback path. Applicant has not argued, nor claimed, that lesser current will flow only through one component, in contrast to the Examiner's assertion. As explained above, when read in context and in view of the specification, claim 9 calls for lesser current to flow through a component (e.g., A/D converter 305) when the input and output terminals are coupled than when the terminals are not coupled. Contrary to the Examiner's assertion, claim 9 does not refer to any one particular component in the feedback path receiving less (or more) current than another component in series in that same feedback path. In other words, by claiming that lesser current with flow through the A/D converter, Applicant has not provided any limitations, via the claims, for current attributes in other components in the feedback path. Put another way, Applicant has not specified whether other components will have greater or lesser current as these possibilities are not essential to claim 9

(*i.e.*, such possibilities are not essential to practicing the invention, thus they need not be claimed, M.P.E.P. § 2172.01, ¶ 1).

In the Final Office Action, the Examiner asks "[h]ow can a 'feedback path' have an input and output terminal coupled to a switch, this is inconsistent with the well known definition of a feedback path (loop). A feedback path comprising two terminals coupled to a switch is vague and unclear." Final Office Action, p.8. As Applicant has pointed out in this and previous responses, Fig. 2 of the instant Application shows, as an illustrative, non-limiting example, DC Cancellation Loop 298 with components: input VIN 285, A/D 305, DC Cancellation 315, Limiter 317, D/A 318, S/W (Switch) 319 and output CANC 290. This loop shows S/W 319 coupled directly to output CANC 290 and a path from input VIN 285 to S/W 319. In normal voice mode, the S/W 319 connects D/A 318 to output CANC 290. In the event that the control signal activates S/W 319, the path between input VIN 285 to output CANC 290 (via S/W 319) is closed providing "coupling" of the input and output terminals of the feedback path. This example is illustrative in nature for the Examiner's benefit (to answer the question posed by the Examiner in the Final Office Action), and does not limit the claims in any way. Thus, as described herein, a feedback path may have an input terminal and an output terminal coupled by a switch in response to receiving a control signal, as called for in claim 9.

For at least these reasons, Applicant respectfully submits that all the claims rejected under 35 USC §112, ¶2, are not indefinite. Applicant respectfully requests the Examiner's rejection be withdrawn.

Claim Rejections – 35 USC §102

The Examiner maintains the rejection of claims 9-12 and 19-22 under 35 U.S.C. §102(b) as being anticipated by US 5,809,109 ***(Moyal)***. Applicant respectfully traverses this rejection.

As described in the patent application, signals in a line card can fluctuate to high levels during the ringing mode, thus causing damage to one or more electronic components of the line card. One or more embodiments of the present invention are directed at reducing the potential of damage to electronic components in the line card during the ringing mode. By way of example, Figure 2 of the present application depicts a line card 10 that includes a DC cancellation loop 298 for processing voice signals. This loop may include one or more electrical components, such as an analog-to-digital converter 305, for processing signals. As explained in the patent application, and as shown in Figure 2, during the ringing mode, in order to reduce the voltage and/or current levels in the line card 10, one or more embodiments of the present invention are directed at coupling the VIN terminal 285 to CANC terminal 290 of the loop using a switch 319. By coupling these terminals in an inventive manner, more of the current flows through these terminals during the ringing mode, while lesser current flows throw the DC cancellation loop 298, thereby protecting the electrical components (*e.g.,* A/D converter 305) in the loop from damage. Against this general backdrop, the claims are now specifically addressed.

For ease of illustration, claim 9 is discussed first. Claim 9 is directed to an apparatus that includes a feedback path having an input and output terminal. Claim 9 further specifies that the feedback path includes an analog-to-digital converter for processing voice signals. The apparatus of claim 9 further calls for a switch for coupling the input and output terminal of the feedback path in response to receiving a control signal, wherein lesser current flows through the analog-to-digital converter in the feedback path as a result of coupling the input and output terminals. Claim 9 further calls for a ringing generator that provides a ringing signal in response to the control signal. As explained in the patent application, the two terminals are coupled so that lesser current flows to the A/D converter, thereby reducing the potential of any damage.

The Examiner asserts that ***Moyal*** teaches all the features of claim 9. Applicant respectfully disagrees. In the Final Office Action the Examiner indicated in the Response to Arguments section that it is the Examiner's position that the Vin terminal of switch 105 and the input terminal of the A/D converter 110 correspond to the claimed input and output terminals, as called for in claim 9. *See* Final Office Action, p.7. This position is in direct conflict with the Examiner's position stated in the 35 USC §102 rejection section of the Office Action (dated Dec. 10, 2008). *See id.*at pp.3-4 (stating that the tip and ring terminals 18 and 20 correspond to the input/output terminals of claim 9). At best, the Examiner's positions appear to be inconsistent. In the Final Office Action (Response to Arguments, p.8), the Examiner asserts that inconsistencies presented by the Examiner are a result of unclear claim language. As Applicant has explained above with respect to the rejections under 35 U.S.C. §112, the pending claims are clear and not indefinite. Regardless, to the extent it is the Examiner's position that the Vin terminal of switch 105 and the input to the A/D converter 110 correspond to the input and output terminals called for in claim 1, this position is untenable for at least the reasons cited in the 35 U.S.C. §112 discussion above.

Further, Figure 4 and col. 3, ll. 19-38 of ***Moyal***, as cited by the Examiner, describe a switch 105 that couples the output line 101 (i.e., the output line of PCD circuit 100) to the input of A/D converter 110 when the circuit is in the ringing mode. In the non-ringing mode, ***Moyal*** teaches that the switch couples the Vin signal to the input of A/D converter 110. This configuration is problematic for the Examiner's position because the Vin signal and the input of A/D 110 are not input/output terminals of a feedback loop. When in ringing mode, there is **no loop** between the Vin signal and the input of A/D 110. In ringing mode, the switch opens the connection between the Vin signal and the input of A/D 110; in other words, an open connection

means there is no contact between these two points. The description and figures in ***Moyal*** do not teach or describe any other loop, circuit or connection between the Vin signal and the input of A/D 110. Thus, if there is no contact or other circuit connecting the Vin signal and the input of A/D 110, there cannot be a feedback loop in ringing mode. It follows that if there is not a feedback loop in ringing mode, the switch 105 cannot couple the input/output terminals of the feedback loop in response to receiving a control signal. In contrast, claim 1 calls for an input and an output of a feedback loop and for coupling the input and output in response to receiving a control signal. Further, claim 9 calls for an A/D converter in the feedback path. Under the Examiner's interpretation, the A/D converter is not within the feedback loop.

In addition, the Examiner makes the argument that the Vin signal provides "lesser current" than the ring generator (*see* Final Office Action, p.4, claim 9 arguments). Claim 1 calls for lesser current to flow through the A/D converter when the switch couples the input terminal and the output terminal of the feedback path. Under the Examiner's interpretation, for Vin to correspond to the "lesser current" limitation of claim 1, the switch 105 of ***Moyal*** must also couple the input and output terminals of the feedback path, as called for in claim 1. *See* ***Moyal***, Fig. 4. In other words, if the switch provides lesser current after coupling, the switch must connect the input and output terminals after coupling. According to ***Moyal***, Fig. 4, the position of the switch, as shown, corresponds to the "coupled" position of claim 1. It then follows that Vin **must** correspond to either the input or the output terminal of claim 1 under the Examiner's interpretation. As such, any arguments made by the Examiner in which Vin is not a terminal must fail under the Examiner's "lesser current" interpretation (*e.g.*, the Examiner's argument that the tip 20 and ring 18 terminals in ***Moyal***, Fig. 4 are the input and output terminals is untenable under the Examiner's "lesser current" interpretation).

Further, as previously argued in the 35 U.S.C. §112 arguments, the Examiner's argument that Vin is the input terminal of claim 1 and the input to the A/D converter 110 is the output terminal of claim 1 is incorrect. As such, the Examiner has not shown how the ***Moyal*** reference has taught (or can teach) all the features of claim 9. That is, under the Examiner's "lesser current" interpretation, Vin must be a terminal of the feedback path, but Vin cannot, by it's definition in ***Moyal***, Fig. 4, be a terminal of a feedback path, as called for in claim 1. Under either position, the Examiner's arguments and reliance upon ***Moyal*** are shown to be misplaced.

In the Final Office Action, the Examiner argued in the Response to Arguments section that the Vin signal has a lower current than the analog ringing signal driving the subscriber loop. *See* Final Office Action, p.8. The Examiner improperly attempts to cite an article from Wikipedia.org in support of this assertion. However, as the Examiner is not doubt aware, Wikipedia is not a proper source for substantiation. Wikipedia.org is available for editing by the public at large, thus the content on its website cannot be relied upon to be accurate. The Examiner does not cite any additional facts in the Response to Arguments section to substantiate this conclusory statement. The Examiner's position rests upon the assumption that the Vin line has the same impedance value as the PCD Circuit output line 101 (i.e., because Voltage = Current * Resistance or Current * Impedance). That is, the Vin line and the output line 101 would need to have equal impedance values for a direct correlation between rise in voltage and subsequent fall in current. In other words, even if it is assumed, for the sake of argument, that the voltage on Vin is lower than the voltage on PCD Circuit output line 101, there would not be less current flowing into the A/D converter 110 if the impedance of the Vin line was higher than that of the PCD Circuit output line 101 (according to the formula Voltage = Current * Resistance). There are no teachings in ***Moyal*** that specifying the impedance value of the Vin

line or that the current into the A/D converter 110 is less when switch 105 is in the non-ringing position.

Claim 9 also calls for a control signal which activates a switch *and* prompts a ringing generator to provide a ringing signal. That is, the control signal recited in claim 1 is used for the switch and ringing generator. *See* Specification, Fig. 2 (319, 323, control signal from 350). In contrast, ***Moyal*** shows a "Ring Command" signal for activating switch 105, but ***Moyal*** is silent with respect to any control signals for prompting ring generator 202. The "Ring Command" signal is described as "supplied by higher level firmware or software, for example, from a private branch exchange, central office, or other similar entity." ***Moyal***, col. 3, ll. 13-16. As such, the Ring Command signal cannot correspond to the control signal, as called for in claim 9, because the Ring Command signal in ***Moyal*** does not activate the switch 105 **and** the ring generator 202.

For at least these additional reasons, claim 9 is allowable. For at least reasons similar to those discussed above, claims depending from claim 9 are also allowable. Moreover, for at least similar reasons, all the remaining claims are also allowable.

Other pending claims are allowable in view of the features recited therein. For example, claim 19 and its dependent claims are allowable because ***Moyal*** fails to at least teach the claimed feature of coupling the input and the output terminal of the first path in response to receiving the control signal such that lesser current flows through at least one of the components while the input and output terminals are coupled. Similarly, claim 22 is allowable because ***Moyal*** at least fails to teach a means for coupling the input and the output terminal of the first path in response to receiving the control signal, wherein the coupling of the input and output terminals allows lesser current to flow through at least one of the components.

For at least these reasons, Applicant respectfully asserts the pending claims are not anticipated by ***Moyal***. Reconsideration is respectfully requested.

In light of the reasons presented above, a Notice of Allowance is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Houston, Texas telephone number (713) 934-4069 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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